

## II. CLAIM AMENDMENTS

1. (Original) A method of forming a high resolution LED array comprising the steps of:

providing a plurality of LED chips to form the LED array;

inward biasing an electrode of an LED located at each end of each chip by a predetermined amount;

reducing a size of each LED chip by removing, at each end of each chip, an amount of chip material substantially equal to the predetermined amount; and

forming the array by placing each chip end to end with a gap between each chip, wherein the gap is suitably large for placement accuracies and a consistent pitch of approximately 21.2  $\mu\text{m}$  is maintained between each LED on each chip.

2. (Original) The method of claim 1 wherein the step of inward biasing the electrode comprises positioning the electrode approximately 2.6  $\mu\text{m}$  from the edge.

3. (Original) The method of claim 1 wherein the predetermined amount is approximately 2.6  $\mu\text{m}$ .

4. (Original) The method of claim 1 wherein the step of inward biasing includes shifting a centroid of light emitted from the LED to a side of the chip near the end of the chip, wherein an emitted light profile of the LED is varied to allow the gap between adjacent chips to be larger while a consistent distance is maintained between adjacent pixels on each chip.

5. (Original) The method of claim 1 wherein the step of inward biasing includes biasing a centroid of each LED at the end of each chip toward the edge.

6. (Previously Presented) The method of claim 1 wherein the high resolution LED array formed comprises an LED array providing at least 1200 spots per inch ("SPI").

7. (Currently Amended) A high resolution LED printbar comprising:

- a plurality of LED chips butted together with a gap between adjacent LEDs to form an array, wherein each LED chip comprises:

- a plurality of LEDs, each LED adapted to generate an emitted light;

- a center electrode extending from each LED that is adapted to electrically connect the LED to a wire bond pad, the center electrode being positioned over an emitting side of the LED, wherein a centroid of emitted light from each LED is centered over the LED;

an LED at each end of the chip and an electrode associated with each end electrode, the electrode being inward biased over each respective end LED, wherein a centroid of emitted light from each end LED is positioned closer to an outer edge of the chip; and

~~wherein chip material at each end of adjacent chips in the array is removed by an amount adjacent LEDs having a removed portion at each end that abuts another adjacent LED, the removed portion comprising an amount of chip material substantially equal to the inward bias of the electrode associated with that end, and~~

the gap between adjacent LED chips in the array provides a pitch between each adjacent LED in the array of approximately 21.2  $\mu\text{m}$ .

8. (Previously Presented) The printbar of claim 7 wherein the gap between adjacent LED chips is at least 5 $\mu\text{m}$ .

9. (Original) The printbar of claim 7 wherein a resolution of the printbar is at least 1200 spots per inch.

10. (Original) The printbar of claim 7 wherein a distance of at least 5 $\mu\text{m}$  is maintained between a chip edge and an adjacent edge of the end LED and a gap between adjacent LED chips is approximately 6.4 $\mu\text{m}$ .

11. (Previously Presented) The printbar of claim 7 wherein the electrode of an end LED produces a light centroid that is right of center of a light emitting portion of the LED.

12. (Currently Amended) A high resolution LED array comprising:

a plurality of LED chips placed end to end with a gap between each chip;

a center electrode associated with each LED on each chip adapted to electrically connect each LED to associated circuitry and form a centroid of emitted light from each LED;

a pair of end LEDs on each chip, wherein the center electrode associated with each end LED that is adjacent another LED chip is inward biased by a predetermined amount and ~~chip material at the adjacent end of each LED chip is removed~~ by each end of each chip that is adjacent another chip having a removed portion that is equal to the predetermined amount in order to maintain a consistent pitch of approximately 21.2  $\mu\text{m}$  between each LED on each chip ~~when the gap between and each adjacent ends of the LED chips is separated by a gap that is~~ separated by a gap that is approximately twice the predetermined amount.

13. (Previously Cancelled)

14. (Original) The LED array of claim 12 wherein the predetermined amount is approximately 2.6  $\mu\text{m}$ .

15. (Original) The LED array of claim 12 wherein the gap is approximately 5  $\mu\text{m}$ .

16. (Original) The LED array of claim 12 wherein a resolution of the LED array is at least 1200 spots per inch.

17. (Currently Amended) An LED array comprising:

at least two LED chips positioned adjacent to each other, each LED chip comprising a plurality of LEDs, each LED producing an emission centroid light pixel;

wherein an electrode of an LED at each end of each LED chip that is inward biased from a center of the LED in order to shift a position of a respective centroid of emitted light closer to a respective LED chip edge; and

~~wherein a minimum gap between adjacent LED chips~~ are separated by a minimum gap ~~is maintained~~ to provide accurate chip placement and allow for thermal expansion of the LED chip, while maintaining a constant pitch between pixels; and

~~by removing an amount of chip material at an each end portion of each LED chip that is adjacent to another LED chip~~ includes a removed portion of chip material, ~~thea~~ removed amount of chip material being equivalent to a distance that the electrode of the LED at the end of the LED chip is inward biased.

18. (Previously Presented) The LED array of Claim 17 wherein the constant pitch is approximately 21.2  $\mu\text{m}$ .

19. (Previously Presented) The LED array of Claim 17 wherein the LED array is a 1200 SPI array.

20. (Previously Presented) The LED array of Claim 17 wherein the minimum gap is approximately 5.9  $\mu\text{m}$ .

21. (Previously Presented) The LED array of claim 17 wherein the electrodes at the adjacent ends of the two LED chips are biased toward a center of each respective LED chip by approximately 2.6  $\mu\text{m}$  and the amount of chip material removed at a corresponding end of each LED chip is approximately 2.6  $\mu\text{m}$ , and wherein the adjacent ends of the two LED chips are spaced approximately 5.2  $\mu\text{m}$  from each other.

22. (Previously Presented) The LED array of claim 17 wherein an amount of inward bias of an electrode of an LED at each end of adjacent LED chips is substantially the same as an amount of removed chip material at the corresponding ends, and wherein a gap between the adjacent LED chips is at least 5 $\mu\text{m}$ , with an average pitch between adjacent light pixels being approximately 21.2  $\mu\text{m}$ .